

Well Name: GUNNER 8 FEDERAL COM	Well Location: T26S / R34E / SEC 5 / NWNE /	County or Parish/State: /
Well Number: 602Y	Type of Well: OIL WELL	Allottee or Tribe Name:
Lease Number: NMNM124664	Unit or CA Name:	Unit or CA Number:
US Well Number: 300254936600X1 30-025-51277	Well Status: Plugged and Abandoned	Operator: COG OPERATING LLC

Notice of Intent

Sundry ID: 2724799

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 04/06/2023	Time Sundry Submitted: 02:26
Date proposed operation will begin: 04/06/2023	

**Procedure Description:** COG Operating LLC, requests approval for the following changes to the above approved APD. Well number for Gunner 8 Federal Com 602H (30-025-49366) be changed to 602Y. We drilled surface section to 1,148ft and ran 10 ¾” surface casing. We cement surface pipe. Got full returns, circulated 94bbls of cement to surface. When we attempted to test casing we were unable to get a casing test. We ran in hole with caliper log and found casing was parted at 824ft. The decision was made to P&A . The Gunner 8 Federal Com 602Y P&A sundry was sent to BLM on 3/31/2023. COG Operating LLC, requests permission to skid the surface location and redrill as below: Gunner 8 Federal Com 602H replacement well. New SHL: 220 ft FNL & 1480 ft FEL. NWNE Section 5. T26S. R34E Lea Co. FTP:100 ft FNL & 2310 ft FEL. Section 5. T26S. R34E. LTP: 100 ft FSL & 2310 ft FEL. Section 8. T26S. R34E. BHL: 50 ft FSL & 2310 ft FEL. Section 8. T26S. R34E. MD: 23,285' TVD: 12,969' Pad Expansion: From: 490' x 400' To: 520' x 400' Please see attached revised C-102, 3160-3, drilling program, directional plan, AC report, layout, reclamation. P&A well should be changed to: Gunner 8 Federal Com 602Y.

NOI Attachments

Procedure Description

Gunner\_8\_Federal\_602H\_Replacement\_Attachments\_20230406142510.pdf

Received by OCD: 4/7/2023 10:44:44 AM

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County or Parish/State: /

Well Number: 602Y

Type of Well: OIL WELL

Allottee or Tribe Name:

Lease Number: NMNM124664

Unit or CA Name:

Unit or CA Number:

US Well Number: 300254936600X1

Well Status: Plugged and Abandoned

Operator: COG OPERATING LLC

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Operator

I certify that the foregoing is true and correct. Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction. Electronic submission of Sundry Notices through this system satisfies regulations requiring a

Operator Electronic Signature: MAYTE REYES

Signed on: APR 06, 2023 02:23 PM

Name: COG OPERATING LLC

Title: Regulatory Analyst

Street Address: 925 N ELDRIDGE PARKWAY

City: HOUSTON

State: TX

Phone: (281) 293-1000

Email address: MAYTE.X.REYES@CONOCOPHILLIPS.COM

Field

Representative Name: Gerald Herrera

Street Address: 2208 West Main Street

City: Artesia

State: NM

Zip: 88210

Phone: (575)748-6940

Email address: gerald.a.herrera@conocophillips.com

BLM Point of Contact

BLM POC Name: CODY LAYTON

BLM POC Title: Assistant Field Manager Lands & Minerals

BLM POC Phone: 5752345959

BLM POC Email Address: clayton@blm.gov

Disposition: Approved

Disposition Date: 04/07/2023

Signature: Cody R. Layton

DISTRICT I  
1625 N. FRENCH DR., HOBBS, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II  
811 S. FIRST ST., ARTESIA, NM 88210  
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DISTRICT III  
1000 RIO BRAZOS RD., AZTEC, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV  
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 SOUTH ST. FRANCIS DR.  
Santa Fe, New Mexico 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number <b>30-025-51277</b>	Pool Code <b>98094</b>	Pool Name <b>BOBCAT DRAW; UPPER WOLFCAMP</b>
Property Code <b>39912</b>	Property Name <b>GUNNER 8 FEDERAL COM</b>	Well Number <b>602H</b>
OGRID No. <b>229137</b>	Operator Name <b>COG OPERATING, LLC</b>	Elevation <b>3346.7'</b>

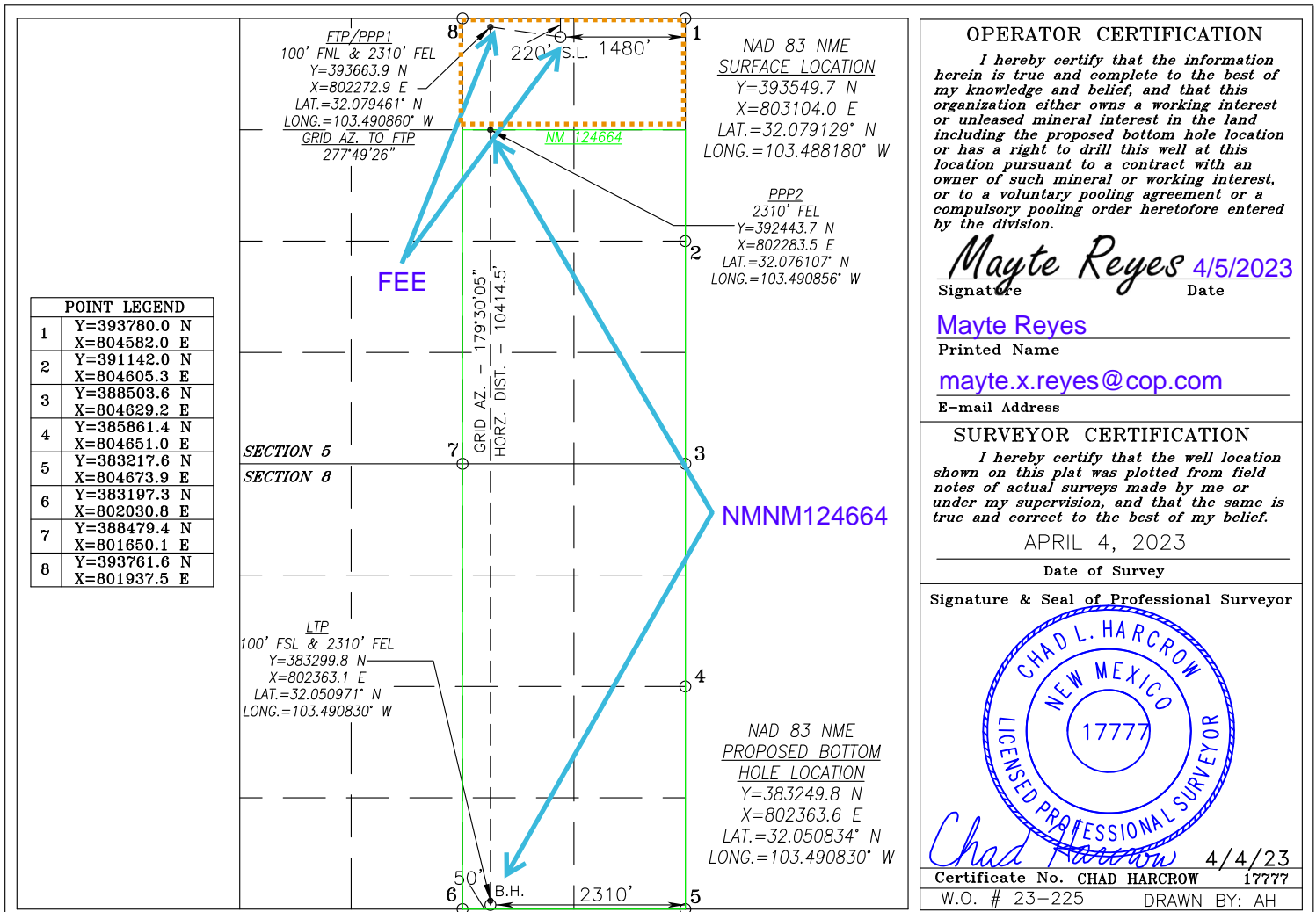
**Surface Location**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	5	26-S	34-E		220	NORTH	1480	EAST	LEA

**Bottom Hole Location If Different From Surface**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
0	8	26-S	34-E		50	SOUTH	2310	EAST	LEA
Dedicated Acres <b>640</b>	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



State of New Mexico  
Energy, Minerals and Natural Resources Department

Submit Electronically  
Via E-permitting

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

## NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

### Section 1 – Plan Description

Effective May 25, 2021

**I. Operator:** COG Operating LLC **OGRID:** 229137 **Date:** 9 / 22 / 22

**II. Type:** ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: \_\_\_\_\_

**III. Well(s):** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
Gunner 8 Federal Com 706H	30-025-	B-5-26S-34E	220 FNL & 1330 FEL	± 1810	± 3597	± 3851

**IV. Central Delivery Point Name:** \_\_\_\_\_ [See 19.15.27.9(D)(1) NMAC]

**V. Anticipated Schedule:** Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
Gunner 8 Federal Com 706H	Pending	6/28/2023	± 25 days from spud	10/26/2023	11/5/2023	11/10/2023

**VI. Separation Equipment:** ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

**VII. Operational Practices:** ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

**VIII. Best Management Practices:** ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

**Section 2 – Enhanced Plan**  
**EFFECTIVE APRIL 1, 2022**

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

**IX. Anticipated Natural Gas Production:**

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

**X. Natural Gas Gathering System (NGGS):**

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

**XI. Map.** ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

**XII. Line Capacity.** The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

**XIII. Line Pressure.** Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

**XIV. Confidentiality:** ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

### **Section 3 - Certifications**

**Effective May 25, 2021**

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system.

***If Operator checks this box, Operator will select one of the following:***

**Well Shut-In.** ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

**Venting and Flaring Plan.** ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- (a) power generation on lease;
- (b) power generation for grid;
- (c) compression on lease;
- (d) liquids removal on lease;
- (e) reinjection for underground storage;
- (f) reinjection for temporary storage;
- (g) reinjection for enhanced oil recovery;
- (h) fuel cell production; and
- (i) other alternative beneficial uses approved by the division.

### **Section 4 - Notices**

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

## VI. Separation Equipment

How Operator will size separation equipment to optimize gas capture:

All ConocoPhillips production facility equipment will be sized per industry standards (API 12J) with adequate retention time to effectively separate all phases of production. Each project will take into consideration the number of wells and type curves for each formation pool to ensure adequate facility capacity. Design considerations will also include review of all piping, tanks, VRU's and associated equipment to ensure optimized gas capture minimized risk of release.

## VII. Operational Practices

Actions Operator will take to comply with the requirements below:

### B. Drilling Operations

- During drilling, flare stacks will be located a minimum of 100 feet from the nearest surface hole location. All gas is captured or combusted. If an emergency or malfunction occurs, gas will be flared or vented for public health, safety, and the environment and be properly reported to the NMOCD pursuant to 19.15.27.8.G.
- Measure or estimate the volume of natural gas that is vented, flared or beneficially used during drilling, completion and production operations, regardless of the reason or authorization for such venting or flaring.

### C. Completion Operations

- During completion operations, operator does not produce oil or gas but maintains adequate well control through completion operations.
- Individual well test separators will be set to properly separate gas and liquids. A temporary test separator will be utilized initially to process volumes. In addition, separators will be tied into flowback tanks which will be tied into the gas processing equipment for sales down a pipeline.

### D. Venting and flaring during production operations

- During each phase of well life (drilling, completion and production) of a ConocoPhillips well, COP personnel will follow all necessary procedures to ensure both the operation and the equipment are within the NMAC 19.15.27.8 Subsection D guidelines.
- During well operations that require unloading of the well to atmospheric pressure, all reasonable actions will be taken to minimize vented gas
- Through the life of the well all flaring shall be measured, and venting events quantified using the data available and industry best practice.

### E. Performance standards for separation, storage tank and flare equipment

- All storage tanks and separation equipment are designed minimize risk of liquid or vapor release and optimize gas capture. This includes automation for automatic gauging and pressure monitoring.



- All flare stacks are equipped with auto ignition devices and/or continuous pilots and are designed to operate at maximum combustion efficiency pursuant NMAC 19.15.27.8 Subsection E. Flares will follow COP spacing guidelines to ensure they are a safe distance from combustibles and operations equipment.
- COP personnel will conduct routine AVO inspections on a regular basis per NMAC 19.15.27.8 Subsection E guidelines.

F. Measurement of vented and flared natural gas.

- Measurement equipment will be installed to quantify gas flared during drilling, completion and production of the well.
- All measurement devices installed will meet accuracy ratings per AGA and API standards.
- Measurement devices will be installed without manifolds that allow diversion of gas around the metering element, except for the sole purpose of inspection of servicing the measurement device.

**VIII. Best Management Practices**

- Operator will curtail or shut in production, within reasonable limits, during upset conditions to minimize venting and flaring.
- When feasible, Operator will use equipment to capture gas that would otherwise be vented or flared.
- During completions and production operations Operator will minimize blowdowns to atmosphere
- When feasible, Operator will use electric or air actuated equipment to reduce bleed emissions



I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature: <i>Mayte Reyes</i>
Printed Name: Mayte Reyes
Title: Sr. Regulatory Coordinator
E-mail Address: mayte.x.reyes@conocophillips.com
Date: 9/22/2022
Phone: 575-748-6945
<b>OIL CONSERVATION DIVISION</b> <b>(Only applicable when submitted as a standalone form)</b>
Approved By:
Title:
Approval Date:
Conditions of Approval:

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 1. Geologic Formations

TVD of target	12,969' EOL	Pilot hole depth	NA
MD at TD:	23,285'	Deepest expected fresh water:	150'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	832	Water	
Top of Salt	1212	Salt	
Base of Salt	5056	Salt	
Lamar	5307	Salt Water	
Bell Canyon	5339	Salt Water	
Cherry Canyon	6347	Oil/Gas	
Brushy Canyon	7967	Oil/Gas	
Bone Spring Lime	9512	Oil/Gas	
1st Bone Spring Sand	10477	Oil/Gas	
2nd Bone Spring Sand	11495	Oil/Gas	
3rd Bone Spring Sand	12106	Oil/Gas	
Wolfcamp A	12584	Target	
Wolfcamp B	0	Not Penetrated	
Wolfcamp D	0	Not Penetrated	

## 2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Body	SF Joint
	From	To								
14.75"	0	1150	10.75"	45.5	N80	BTC	4.69	1.67	19.88	20.97
9.875"	0	8500	7.625"	29.7	HCL80	BTC	1.56	1.02	2.88	2.90
8.750"	8500	12075	7.625"	29.7	HCP110	FJM	1.19	1.33	2.62	1.56
6.75"	0	11575	5.5"	23	P110	BTC	1.72	2.04	3.12	3.10
6.75"	11575	23,285	5.0"	18	P110	BTC	1.72	2.04	3.12	3.10
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse. Surface burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface and  
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

The 5" casing will be run back 200' into the intermediate casing to ensure the coupling OD clearance is greater than .422" for the cement bond tie in.

## COG Operating, LLC - Gunner 8 Federal Com #602H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary?	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 3. Cementing Program

Casing	# Skis	Wt. lb/ gal	Yld ft3/ sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	548	13.5	1.75	9	12	Lead: Class C + 4% Gel + 1% CaCl <sub>2</sub>
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl <sub>2</sub>
Inter.	860	10.3	3.3	22	24	Halliburton tunded light
Stage 1	250	14.8	1.35	6.6	8	Tail: Class H
Prod	537	12.7	2	10.7	72	Lead: 50:50:10 H Blend
	1483	14.4	1.24	5.7	19	Tail: 50:50:2 Class H Blend

If losses are encountered in the intermediate section a DV/ECP tool will be run ~50' above the Lamar Lime top, cement will be adjusted accordingly if this contingency is necessary.

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
1 <sup>st</sup> Intermediate	0'	50%
Production	11,575'	35% OH in Lateral (KOP to EOL)

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
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BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	x	Tested to:
9-7/8"	13-5/8"	5M	Annular	x	2500psi
			Blind Ram	x	5000psi
			Pipe Ram	x	
			Double Ram	x	
			Other*		
6-3/4"	13-5/8"	10M	5M Annular	x	5000psi
			Blind Ram	x	10000psi
			Pipe Ram	x	
			Double Ram	x	
			Other*		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2.  On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. Shoe	FW Gel	8.6 - 8.8	28-34	N/C
Surf csg	7-5/8" Int shoe	Brine Diesel Emulsion	8.4 - 9	28-34	N/C
7-5/8" Int shoe	Lateral TD	OBM	9.6 - 12.5	35-45	<20

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---------------------------------------------------------	-----------------------------

## 6. Logging and Testing Procedures

Logging, Coring and Testing.	
Y	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
Y	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain.
N	Coring? If yes, explain.

Additional logs planned		Interval
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

**COG Operating, LLC - Gunner 8 Federal Com #602H****7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	8430 psi at 12969' TVD
Abnormal Temperature	NO 185 Deg. F.

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N H<sub>2</sub>S is present

Y H<sub>2</sub>S Plan attached

**8. Other Facets of Operation**

Y	Is it a walking operation?
Y	Is casing pre-set?

x	H <sub>2</sub> S Plan.
x	BOP & Choke Schematics.
x	Directional Plan



# **DELAWARE BASIN EAST**

**BULLDOG PROSPECT (NM-E)**

**GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)**

**GUNNER 8 FEDERAL COM #602H**

**OWB**

**Plan: PWP1**

## **Standard Planning Report**

**05 April, 2023**

## ConocoPhillips

## Planning Report

<b>Database:</b>	Central Planning Prod	<b>Local Co-ordinate Reference:</b>	Well GUNNER 8 FEDERAL COM #602H
<b>Company:</b>	DELAWARE BASIN EAST	<b>TVD Reference:</b>	KB= 27 @ 3374.0usft
<b>Project:</b>	BULLDOG PROSPECT (NM-E)	<b>MD Reference:</b>	KB= 27 @ 3374.0usft
<b>Site:</b>	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	<b>North Reference:</b>	Grid
<b>Well:</b>	GUNNER 8 FEDERAL COM #602H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PWP1		

<b>Project</b>	BULLDOG PROSPECT (NM-E)		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	New Mexico East 3001		

<b>Site</b>	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)		
<b>Site Position:</b>		<b>Northing:</b>	419,780.49 usft
<b>From:</b>	Map	<b>Easting:</b>	741,734.30 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	32° 9' 6.058 N
		<b>Longitude:</b>	103° 33' 8.114 W

<b>Well</b>	GUNNER 8 FEDERAL COM #602H		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>
<b>Position Uncertainty</b>		3.0 usft	<b>Wellhead Elevation:</b>
<b>Grid Convergence:</b>		0.45 °	<b>Ground Level:</b>
			3,347.0 usft

<b>Wellbore</b>	OWB				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2022	6/1/2023	6.28	59.65	47,374.31064682

<b>Design</b>	PWP1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	12,969.0	0.0	0.0	184.11

<b>Plan Survey Tool Program</b>	<b>Date</b>	4/5/2023		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.0	1,500.0 PWP1 (OWB)	r.5 SDI_KPR_WL_NS-CT	SDI Keeper Wireline Gyrocom
2	1,500.0	1,500.0 PWP1 (OWB)	r.5 MWD+IFR1	OWSG MWD + IFR1 rev.5
3	12,557.1	23,285.7 PWP1 (OWB)	r.5 MWD+IFR1+MS	OWSG MWD + IFR1 + Multi-St

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Planning Report

Database:	Central Planning Prod	Local Co-ordinate Reference:	Well GUNNER 8 FEDERAL COM #602H
Company:	DELAWARE BASIN EAST	TVD Reference:	KB= 27 @ 3374.0usft
Project:	BULLDOG PROSPECT (NM-E)	MD Reference:	KB= 27 @ 3374.0usft
Site:	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	North Reference:	Grid
Well:	GUNNER 8 FEDERAL COM #602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,166.7	10.00	280.50	2,163.3	10.6	-57.1	1.50	1.50	0.00	280.50	
5,707.2	10.00	280.50	5,650.0	122.6	-661.6	0.00	0.00	0.00	0.00	
7,707.2	0.00	0.00	7,639.9	154.3	-832.7	0.50	-0.50	0.00	180.00	
12,558.8	0.00	0.00	12,491.5	154.3	-832.7	0.00	0.00	0.00	0.00	
13,308.8	90.00	179.50	12,969.0	-323.1	-828.5	12.00	12.00	23.93	179.50	
23,285.7	90.00	179.50	12,969.0	-10,299.6	-740.9	0.00	0.00	0.00	0.00	

## ConocoPhillips

## Planning Report

<b>Database:</b>	Central Planning Prod	<b>Local Co-ordinate Reference:</b>	Well GUNNER 8 FEDERAL COM #602H
<b>Company:</b>	DELAWARE BASIN EAST	<b>TVD Reference:</b>	KB= 27 @ 3374.0usft
<b>Project:</b>	BULLDOG PROSPECT (NM-E)	<b>MD Reference:</b>	KB= 27 @ 3374.0usft
<b>Site:</b>	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	<b>North Reference:</b>	Grid
<b>Well:</b>	GUNNER 8 FEDERAL COM #602H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PWP1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,600.0	1.50	280.50	1,600.0	0.2	-1.3	-0.1	1.50	1.50	0.00	
1,700.0	3.00	280.50	1,699.9	1.0	-5.1	-0.6	1.50	1.50	0.00	
1,800.0	4.50	280.50	1,799.7	2.1	-11.6	-1.3	1.50	1.50	0.00	
1,900.0	6.00	280.50	1,899.3	3.8	-20.6	-2.3	1.50	1.50	0.00	
2,000.0	7.50	280.50	1,998.6	6.0	-32.1	-3.6	1.50	1.50	0.00	
2,100.0	9.00	280.50	2,097.5	8.6	-46.2	-5.2	1.50	1.50	0.00	
2,166.7	10.00	280.50	2,163.3	10.6	-57.1	-6.5	1.50	1.50	0.00	
2,200.0	10.00	280.50	2,196.1	11.6	-62.7	-7.1	0.00	0.00	0.00	
2,300.0	10.00	280.50	2,294.6	14.8	-79.8	-9.0	0.00	0.00	0.00	
2,400.0	10.00	280.50	2,393.1	18.0	-96.9	-11.0	0.00	0.00	0.00	
2,500.0	10.00	280.50	2,491.6	21.1	-114.0	-12.9	0.00	0.00	0.00	
2,600.0	10.00	280.50	2,590.0	24.3	-131.0	-14.8	0.00	0.00	0.00	
2,700.0	10.00	280.50	2,688.5	27.5	-148.1	-16.8	0.00	0.00	0.00	
2,800.0	10.00	280.50	2,787.0	30.6	-165.2	-18.7	0.00	0.00	0.00	
2,900.0	10.00	280.50	2,885.5	33.8	-182.3	-20.6	0.00	0.00	0.00	
3,000.0	10.00	280.50	2,984.0	36.9	-199.3	-22.5	0.00	0.00	0.00	
3,100.0	10.00	280.50	3,082.4	40.1	-216.4	-24.5	0.00	0.00	0.00	
3,200.0	10.00	280.50	3,180.9	43.3	-233.5	-26.4	0.00	0.00	0.00	
3,300.0	10.00	280.50	3,279.4	46.4	-250.6	-28.3	0.00	0.00	0.00	
3,400.0	10.00	280.50	3,377.9	49.6	-267.6	-30.3	0.00	0.00	0.00	
3,500.0	10.00	280.50	3,476.4	52.8	-284.7	-32.2	0.00	0.00	0.00	
3,600.0	10.00	280.50	3,574.8	55.9	-301.8	-34.1	0.00	0.00	0.00	
3,700.0	10.00	280.50	3,673.3	59.1	-318.9	-36.1	0.00	0.00	0.00	
3,800.0	10.00	280.50	3,771.8	62.3	-335.9	-38.0	0.00	0.00	0.00	
3,900.0	10.00	280.50	3,870.3	65.4	-353.0	-39.9	0.00	0.00	0.00	
4,000.0	10.00	280.50	3,968.8	68.6	-370.1	-41.9	0.00	0.00	0.00	
4,100.0	10.00	280.50	4,067.2	71.8	-387.2	-43.8	0.00	0.00	0.00	
4,200.0	10.00	280.50	4,165.7	74.9	-404.2	-45.7	0.00	0.00	0.00	
4,300.0	10.00	280.50	4,264.2	78.1	-421.3	-47.7	0.00	0.00	0.00	
4,400.0	10.00	280.50	4,362.7	81.2	-438.4	-49.6	0.00	0.00	0.00	
4,500.0	10.00	280.50	4,461.2	84.4	-455.5	-51.5	0.00	0.00	0.00	
4,600.0	10.00	280.50	4,559.7	87.6	-472.5	-53.4	0.00	0.00	0.00	
4,700.0	10.00	280.50	4,658.1	90.7	-489.6	-55.4	0.00	0.00	0.00	
4,800.0	10.00	280.50	4,756.6	93.9	-506.7	-57.3	0.00	0.00	0.00	
4,900.0	10.00	280.50	4,855.1	97.1	-523.7	-59.2	0.00	0.00	0.00	
5,000.0	10.00	280.50	4,953.6	100.2	-540.8	-61.2	0.00	0.00	0.00	
5,100.0	10.00	280.50	5,052.1	103.4	-557.9	-63.1	0.00	0.00	0.00	

## ConocoPhillips

## Planning Report

<b>Database:</b>	Central Planning Prod	<b>Local Co-ordinate Reference:</b>	Well GUNNER 8 FEDERAL COM #602H
<b>Company:</b>	DELAWARE BASIN EAST	<b>TVD Reference:</b>	KB= 27 @ 3374.0usft
<b>Project:</b>	BULLDOG PROSPECT (NM-E)	<b>MD Reference:</b>	KB= 27 @ 3374.0usft
<b>Site:</b>	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	<b>North Reference:</b>	Grid
<b>Well:</b>	GUNNER 8 FEDERAL COM #602H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PWP1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,200.0	10.00	280.50	5,150.5	106.6	-575.0	-65.0	0.00	0.00	0.00	
5,300.0	10.00	280.50	5,249.0	109.7	-592.0	-67.0	0.00	0.00	0.00	
5,400.0	10.00	280.50	5,347.5	112.9	-609.1	-68.9	0.00	0.00	0.00	
5,500.0	10.00	280.50	5,446.0	116.1	-626.2	-70.8	0.00	0.00	0.00	
5,600.0	10.00	280.50	5,544.5	119.2	-643.3	-72.8	0.00	0.00	0.00	
5,707.2	10.00	280.50	5,650.0	122.6	-661.6	-74.8	0.00	0.00	0.00	
5,800.0	9.54	280.50	5,741.5	125.5	-677.1	-76.6	0.50	-0.50	0.00	
5,900.0	9.04	280.50	5,840.2	128.4	-692.9	-78.4	0.50	-0.50	0.00	
6,000.0	8.54	280.50	5,939.0	131.2	-707.9	-80.1	0.50	-0.50	0.00	
6,100.0	8.04	280.50	6,038.0	133.8	-722.1	-81.7	0.50	-0.50	0.00	
6,200.0	7.54	280.50	6,137.0	136.3	-735.4	-83.2	0.50	-0.50	0.00	
6,300.0	7.04	280.50	6,236.2	138.6	-747.9	-84.6	0.50	-0.50	0.00	
6,400.0	6.54	280.50	6,335.5	140.8	-759.5	-85.9	0.50	-0.50	0.00	
6,500.0	6.04	280.50	6,434.9	142.8	-770.3	-87.1	0.50	-0.50	0.00	
6,600.0	5.54	280.50	6,534.4	144.6	-780.2	-88.2	0.50	-0.50	0.00	
6,700.0	5.04	280.50	6,634.0	146.3	-789.2	-89.3	0.50	-0.50	0.00	
6,800.0	4.54	280.50	6,733.6	147.8	-797.5	-90.2	0.50	-0.50	0.00	
6,900.0	4.04	280.50	6,833.4	149.2	-804.8	-91.0	0.50	-0.50	0.00	
7,000.0	3.54	280.50	6,933.1	150.4	-811.3	-91.8	0.50	-0.50	0.00	
7,100.0	3.04	280.50	7,033.0	151.4	-816.9	-92.4	0.50	-0.50	0.00	
7,200.0	2.54	280.50	7,132.9	152.3	-821.7	-92.9	0.50	-0.50	0.00	
7,300.0	2.04	280.50	7,232.8	153.0	-825.6	-93.4	0.50	-0.50	0.00	
7,400.0	1.54	280.50	7,332.7	153.6	-828.7	-93.7	0.50	-0.50	0.00	
7,500.0	1.04	280.50	7,432.7	154.0	-830.9	-94.0	0.50	-0.50	0.00	
7,600.0	0.54	280.50	7,532.7	154.2	-832.2	-94.1	0.50	-0.50	0.00	
7,707.2	0.00	0.00	7,639.9	154.3	-832.7	-94.2	0.50	-0.50	0.00	
7,800.0	0.00	0.00	7,732.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,832.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,932.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,100.0	0.00	0.00	8,032.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,200.0	0.00	0.00	8,132.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,300.0	0.00	0.00	8,232.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,332.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,432.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,532.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,632.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,732.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,832.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,000.0	0.00	0.00	8,932.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,100.0	0.00	0.00	9,032.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,200.0	0.00	0.00	9,132.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,300.0	0.00	0.00	9,232.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,400.0	0.00	0.00	9,332.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,500.0	0.00	0.00	9,432.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,600.0	0.00	0.00	9,532.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,700.0	0.00	0.00	9,632.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,800.0	0.00	0.00	9,732.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
9,900.0	0.00	0.00	9,832.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,000.0	0.00	0.00	9,932.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,100.0	0.00	0.00	10,032.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,200.0	0.00	0.00	10,132.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,300.0	0.00	0.00	10,232.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,400.0	0.00	0.00	10,332.7	154.3	-832.7	-94.2	0.00	0.00	0.00	

## ConocoPhillips

## Planning Report

<b>Database:</b>	Central Planning Prod	<b>Local Co-ordinate Reference:</b>	Well GUNNER 8 FEDERAL COM #602H
<b>Company:</b>	DELAWARE BASIN EAST	<b>TVD Reference:</b>	KB= 27 @ 3374.0usft
<b>Project:</b>	BULLDOG PROSPECT (NM-E)	<b>MD Reference:</b>	KB= 27 @ 3374.0usft
<b>Site:</b>	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	<b>North Reference:</b>	Grid
<b>Well:</b>	GUNNER 8 FEDERAL COM #602H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PWP1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,500.0	0.00	0.00	10,432.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,600.0	0.00	0.00	10,532.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,700.0	0.00	0.00	10,632.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,800.0	0.00	0.00	10,732.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
10,900.0	0.00	0.00	10,832.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,000.0	0.00	0.00	10,932.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,100.0	0.00	0.00	11,032.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,200.0	0.00	0.00	11,132.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,300.0	0.00	0.00	11,232.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,400.0	0.00	0.00	11,332.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,500.0	0.00	0.00	11,432.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,600.0	0.00	0.00	11,532.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,700.0	0.00	0.00	11,632.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,800.0	0.00	0.00	11,732.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
11,900.0	0.00	0.00	11,832.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,000.0	0.00	0.00	11,932.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,100.0	0.00	0.00	12,032.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,200.0	0.00	0.00	12,132.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,300.0	0.00	0.00	12,232.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,400.0	0.00	0.00	12,332.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,500.0	0.00	0.00	12,432.7	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,558.8	0.00	0.00	12,491.5	154.3	-832.7	-94.2	0.00	0.00	0.00	
12,575.0	1.94	179.50	12,507.7	154.1	-832.7	-93.9	12.00	12.00	0.00	
12,600.0	4.94	179.50	12,532.6	152.6	-832.7	-92.4	12.00	12.00	0.00	
12,625.0	7.94	179.50	12,557.5	149.8	-832.7	-89.6	12.00	12.00	0.00	
12,650.0	10.94	179.50	12,582.1	145.7	-832.7	-85.5	12.00	12.00	0.00	
12,675.0	13.94	179.50	12,606.6	140.3	-832.6	-80.2	12.00	12.00	0.00	
12,700.0	16.94	179.50	12,630.6	133.6	-832.6	-73.5	12.00	12.00	0.00	
12,725.0	19.94	179.50	12,654.4	125.7	-832.5	-65.7	12.00	12.00	0.00	
12,750.0	22.94	179.50	12,677.6	116.6	-832.4	-56.5	12.00	12.00	0.00	
12,775.0	25.94	179.50	12,700.4	106.2	-832.3	-46.2	12.00	12.00	0.00	
12,800.0	28.94	179.50	12,722.6	94.7	-832.2	-34.8	12.00	12.00	0.00	
12,825.0	31.94	179.50	12,744.1	82.0	-832.1	-22.1	12.00	12.00	0.00	
12,850.0	34.94	179.50	12,765.0	68.3	-832.0	-8.4	12.00	12.00	0.00	
12,875.0	37.94	179.50	12,785.1	53.4	-831.9	6.4	12.00	12.00	0.00	
12,900.0	40.94	179.50	12,804.4	37.5	-831.7	22.2	12.00	12.00	0.00	
12,925.0	43.94	179.50	12,822.8	20.7	-831.6	39.1	12.00	12.00	0.00	
12,950.0	46.94	179.50	12,840.4	2.9	-831.4	56.8	12.00	12.00	0.00	
12,975.0	49.94	179.50	12,857.0	-15.8	-831.2	75.4	12.00	12.00	0.00	
13,000.0	52.94	179.50	12,872.5	-35.4	-831.1	94.9	12.00	12.00	0.00	
13,025.0	55.94	179.50	12,887.1	-55.7	-830.9	115.2	12.00	12.00	0.00	
13,050.0	58.94	179.50	12,900.5	-76.8	-830.7	136.2	12.00	12.00	0.00	
13,075.0	61.94	179.50	12,912.9	-98.5	-830.5	157.9	12.00	12.00	0.00	
13,100.0	64.94	179.50	12,924.0	-120.9	-830.3	180.2	12.00	12.00	0.00	
13,125.0	67.94	179.50	12,934.0	-143.8	-830.1	203.0	12.00	12.00	0.00	
13,150.0	70.94	179.50	12,942.8	-167.2	-829.9	226.3	12.00	12.00	0.00	
13,175.0	73.94	179.50	12,950.3	-191.1	-829.7	250.1	12.00	12.00	0.00	
13,200.0	76.94	179.50	12,956.6	-215.2	-829.5	274.2	12.00	12.00	0.00	
13,225.0	79.94	179.50	12,961.6	-239.7	-829.3	298.6	12.00	12.00	0.00	
13,250.0	82.94	179.50	12,965.3	-264.5	-829.1	323.3	12.00	12.00	0.00	
13,275.0	85.94	179.50	12,967.8	-289.3	-828.8	348.1	12.00	12.00	0.00	
13,300.0	88.94	179.50	12,968.9	-314.3	-828.6	372.9	12.00	12.00	0.00	
13,308.8	90.00	179.50	12,969.0	-323.1	-828.5	381.7	12.00	12.00	0.00	

## ConocoPhillips

## Planning Report

<b>Database:</b>	Central Planning Prod	<b>Local Co-ordinate Reference:</b>	Well GUNNER 8 FEDERAL COM #602H
<b>Company:</b>	DELAWARE BASIN EAST	<b>TVD Reference:</b>	KB= 27 @ 3374.0usft
<b>Project:</b>	BULLDOG PROSPECT (NM-E)	<b>MD Reference:</b>	KB= 27 @ 3374.0usft
<b>Site:</b>	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	<b>North Reference:</b>	Grid
<b>Well:</b>	GUNNER 8 FEDERAL COM #602H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PWP1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,400.0	90.00	179.50	12,969.0	-414.3	-827.7	472.6	0.00	0.00	0.00
13,500.0	90.00	179.50	12,969.0	-514.3	-826.9	572.3	0.00	0.00	0.00
13,600.0	90.00	179.50	12,969.0	-614.3	-826.0	672.0	0.00	0.00	0.00
13,700.0	90.00	179.50	12,969.0	-714.3	-825.1	771.6	0.00	0.00	0.00
13,800.0	90.00	179.50	12,969.0	-814.3	-824.2	871.3	0.00	0.00	0.00
13,900.0	90.00	179.50	12,969.0	-914.3	-823.4	971.0	0.00	0.00	0.00
14,000.0	90.00	179.50	12,969.0	-1,014.3	-822.5	1,070.7	0.00	0.00	0.00
14,100.0	90.00	179.50	12,969.0	-1,114.3	-821.6	1,170.3	0.00	0.00	0.00
14,200.0	90.00	179.50	12,969.0	-1,214.3	-820.7	1,270.0	0.00	0.00	0.00
14,300.0	90.00	179.50	12,969.0	-1,314.3	-819.8	1,369.7	0.00	0.00	0.00
14,400.0	90.00	179.50	12,969.0	-1,414.3	-819.0	1,469.4	0.00	0.00	0.00
14,500.0	90.00	179.50	12,969.0	-1,514.3	-818.1	1,569.0	0.00	0.00	0.00
14,600.0	90.00	179.50	12,969.0	-1,614.3	-817.2	1,668.7	0.00	0.00	0.00
14,700.0	90.00	179.50	12,969.0	-1,714.2	-816.3	1,768.4	0.00	0.00	0.00
14,800.0	90.00	179.50	12,969.0	-1,814.2	-815.4	1,868.1	0.00	0.00	0.00
14,900.0	90.00	179.50	12,969.0	-1,914.2	-814.6	1,967.8	0.00	0.00	0.00
15,000.0	90.00	179.50	12,969.0	-2,014.2	-813.7	2,067.4	0.00	0.00	0.00
15,100.0	90.00	179.50	12,969.0	-2,114.2	-812.8	2,167.1	0.00	0.00	0.00
15,200.0	90.00	179.50	12,969.0	-2,214.2	-811.9	2,266.8	0.00	0.00	0.00
15,300.0	90.00	179.50	12,969.0	-2,314.2	-811.1	2,366.5	0.00	0.00	0.00
15,400.0	90.00	179.50	12,969.0	-2,414.2	-810.2	2,466.1	0.00	0.00	0.00
15,500.0	90.00	179.50	12,969.0	-2,514.2	-809.3	2,565.8	0.00	0.00	0.00
15,600.0	90.00	179.50	12,969.0	-2,614.2	-808.4	2,665.5	0.00	0.00	0.00
15,700.0	90.00	179.50	12,969.0	-2,714.2	-807.5	2,765.2	0.00	0.00	0.00
15,800.0	90.00	179.50	12,969.0	-2,814.2	-806.7	2,864.8	0.00	0.00	0.00
15,900.0	90.00	179.50	12,969.0	-2,914.2	-805.8	2,964.5	0.00	0.00	0.00
16,000.0	90.00	179.50	12,969.0	-3,014.2	-804.9	3,064.2	0.00	0.00	0.00
16,100.0	90.00	179.50	12,969.0	-3,114.2	-804.0	3,163.9	0.00	0.00	0.00
16,200.0	90.00	179.50	12,969.0	-3,214.2	-803.1	3,263.5	0.00	0.00	0.00
16,300.0	90.00	179.50	12,969.0	-3,314.2	-802.3	3,363.2	0.00	0.00	0.00
16,400.0	90.00	179.50	12,969.0	-3,414.2	-801.4	3,462.9	0.00	0.00	0.00
16,500.0	90.00	179.50	12,969.0	-3,514.2	-800.5	3,562.6	0.00	0.00	0.00
16,600.0	90.00	179.50	12,969.0	-3,614.2	-799.6	3,662.2	0.00	0.00	0.00
16,700.0	90.00	179.50	12,969.0	-3,714.2	-798.8	3,761.9	0.00	0.00	0.00
16,800.0	90.00	179.50	12,969.0	-3,814.2	-797.9	3,861.6	0.00	0.00	0.00
16,900.0	90.00	179.50	12,969.0	-3,914.2	-797.0	3,961.3	0.00	0.00	0.00
17,000.0	90.00	179.50	12,969.0	-4,014.2	-796.1	4,060.9	0.00	0.00	0.00
17,100.0	90.00	179.50	12,969.0	-4,114.2	-795.2	4,160.6	0.00	0.00	0.00
17,200.0	90.00	179.50	12,969.0	-4,214.2	-794.4	4,260.3	0.00	0.00	0.00
17,300.0	90.00	179.50	12,969.0	-4,314.1	-793.5	4,360.0	0.00	0.00	0.00
17,400.0	90.00	179.50	12,969.0	-4,414.1	-792.6	4,459.6	0.00	0.00	0.00
17,500.0	90.00	179.50	12,969.0	-4,514.1	-791.7	4,559.3	0.00	0.00	0.00
17,600.0	90.00	179.50	12,969.0	-4,614.1	-790.8	4,659.0	0.00	0.00	0.00
17,700.0	90.00	179.50	12,969.0	-4,714.1	-790.0	4,758.7	0.00	0.00	0.00
17,800.0	90.00	179.50	12,969.0	-4,814.1	-789.1	4,858.3	0.00	0.00	0.00
17,900.0	90.00	179.50	12,969.0	-4,914.1	-788.2	4,958.0	0.00	0.00	0.00
18,000.0	90.00	179.50	12,969.0	-5,014.1	-787.3	5,057.7	0.00	0.00	0.00
18,100.0	90.00	179.50	12,969.0	-5,114.1	-786.5	5,157.4	0.00	0.00	0.00
18,200.0	90.00	179.50	12,969.0	-5,214.1	-785.6	5,257.0	0.00	0.00	0.00
18,300.0	90.00	179.50	12,969.0	-5,314.1	-784.7	5,356.7	0.00	0.00	0.00
18,400.0	90.00	179.50	12,969.0	-5,414.1	-783.8	5,456.4	0.00	0.00	0.00
18,500.0	90.00	179.50	12,969.0	-5,514.1	-782.9	5,556.1	0.00	0.00	0.00
18,600.0	90.00	179.50	12,969.0	-5,614.1	-782.1	5,655.7	0.00	0.00	0.00



## ConocoPhillips

## Planning Report

<b>Database:</b>	Central Planning Prod	<b>Local Co-ordinate Reference:</b>	Well GUNNER 8 FEDERAL COM #602H
<b>Company:</b>	DELAWARE BASIN EAST	<b>TVD Reference:</b>	KB= 27 @ 3374.0usft
<b>Project:</b>	BULLDOG PROSPECT (NM-E)	<b>MD Reference:</b>	KB= 27 @ 3374.0usft
<b>Site:</b>	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	<b>North Reference:</b>	Grid
<b>Well:</b>	GUNNER 8 FEDERAL COM #602H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PWP1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,700.0	90.00	179.50	12,969.0	-5,714.1	-781.2	5,755.4	0.00	0.00	0.00
18,800.0	90.00	179.50	12,969.0	-5,814.1	-780.3	5,855.1	0.00	0.00	0.00
18,900.0	90.00	179.50	12,969.0	-5,914.1	-779.4	5,954.8	0.00	0.00	0.00
19,000.0	90.00	179.50	12,969.0	-6,014.1	-778.5	6,054.4	0.00	0.00	0.00
19,100.0	90.00	179.50	12,969.0	-6,114.1	-777.7	6,154.1	0.00	0.00	0.00
19,200.0	90.00	179.50	12,969.0	-6,214.1	-776.8	6,253.8	0.00	0.00	0.00
19,300.0	90.00	179.50	12,969.0	-6,314.1	-775.9	6,353.5	0.00	0.00	0.00
19,400.0	90.00	179.50	12,969.0	-6,414.1	-775.0	6,453.1	0.00	0.00	0.00
19,500.0	90.00	179.50	12,969.0	-6,514.1	-774.2	6,552.8	0.00	0.00	0.00
19,600.0	90.00	179.50	12,969.0	-6,614.1	-773.3	6,652.5	0.00	0.00	0.00
19,700.0	90.00	179.50	12,969.0	-6,714.1	-772.4	6,752.2	0.00	0.00	0.00
19,800.0	90.00	179.50	12,969.0	-6,814.1	-771.5	6,851.8	0.00	0.00	0.00
19,900.0	90.00	179.50	12,969.0	-6,914.0	-770.6	6,951.5	0.00	0.00	0.00
20,000.0	90.00	179.50	12,969.0	-7,014.0	-769.8	7,051.2	0.00	0.00	0.00
20,100.0	90.00	179.50	12,969.0	-7,114.0	-768.9	7,150.9	0.00	0.00	0.00
20,200.0	90.00	179.50	12,969.0	-7,214.0	-768.0	7,250.5	0.00	0.00	0.00
20,300.0	90.00	179.50	12,969.0	-7,314.0	-767.1	7,350.2	0.00	0.00	0.00
20,400.0	90.00	179.50	12,969.0	-7,414.0	-766.3	7,449.9	0.00	0.00	0.00
20,500.0	90.00	179.50	12,969.0	-7,514.0	-765.4	7,549.6	0.00	0.00	0.00
20,600.0	90.00	179.50	12,969.0	-7,614.0	-764.5	7,649.2	0.00	0.00	0.00
20,700.0	90.00	179.50	12,969.0	-7,714.0	-763.6	7,748.9	0.00	0.00	0.00
20,800.0	90.00	179.50	12,969.0	-7,814.0	-762.7	7,848.6	0.00	0.00	0.00
20,900.0	90.00	179.50	12,969.0	-7,914.0	-761.9	7,948.3	0.00	0.00	0.00
21,000.0	90.00	179.50	12,969.0	-8,014.0	-761.0	8,047.9	0.00	0.00	0.00
21,100.0	90.00	179.50	12,969.0	-8,114.0	-760.1	8,147.6	0.00	0.00	0.00
21,200.0	90.00	179.50	12,969.0	-8,214.0	-759.2	8,247.3	0.00	0.00	0.00
21,300.0	90.00	179.50	12,969.0	-8,314.0	-758.3	8,347.0	0.00	0.00	0.00
21,400.0	90.00	179.50	12,969.0	-8,414.0	-757.5	8,446.7	0.00	0.00	0.00
21,500.0	90.00	179.50	12,969.0	-8,514.0	-756.6	8,546.3	0.00	0.00	0.00
21,600.0	90.00	179.50	12,969.0	-8,614.0	-755.7	8,646.0	0.00	0.00	0.00
21,700.0	90.00	179.50	12,969.0	-8,714.0	-754.8	8,745.7	0.00	0.00	0.00
21,800.0	90.00	179.50	12,969.0	-8,814.0	-754.0	8,845.4	0.00	0.00	0.00
21,900.0	90.00	179.50	12,969.0	-8,914.0	-753.1	8,945.0	0.00	0.00	0.00
22,000.0	90.00	179.50	12,969.0	-9,014.0	-752.2	9,044.7	0.00	0.00	0.00
22,100.0	90.00	179.50	12,969.0	-9,114.0	-751.3	9,144.4	0.00	0.00	0.00
22,200.0	90.00	179.50	12,969.0	-9,214.0	-750.4	9,244.1	0.00	0.00	0.00
22,300.0	90.00	179.50	12,969.0	-9,314.0	-749.6	9,343.7	0.00	0.00	0.00
22,400.0	90.00	179.50	12,969.0	-9,414.0	-748.7	9,443.4	0.00	0.00	0.00
22,500.0	90.00	179.50	12,969.0	-9,513.9	-747.8	9,543.1	0.00	0.00	0.00
22,600.0	90.00	179.50	12,969.0	-9,613.9	-746.9	9,642.8	0.00	0.00	0.00
22,700.0	90.00	179.50	12,969.0	-9,713.9	-746.0	9,742.4	0.00	0.00	0.00
22,800.0	90.00	179.50	12,969.0	-9,813.9	-745.2	9,842.1	0.00	0.00	0.00
22,900.0	90.00	179.50	12,969.0	-9,913.9	-744.3	9,941.8	0.00	0.00	0.00
23,000.0	90.00	179.50	12,969.0	-10,013.9	-743.4	10,041.5	0.00	0.00	0.00
23,100.0	90.00	179.50	12,969.0	-10,113.9	-742.5	10,141.1	0.00	0.00	0.00
23,200.0	90.00	179.50	12,969.0	-10,213.9	-741.7	10,240.8	0.00	0.00	0.00
23,285.7	90.00	179.50	12,969.0	-10,299.6	-740.9	10,326.2	0.00	0.00	0.00

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Planning Report

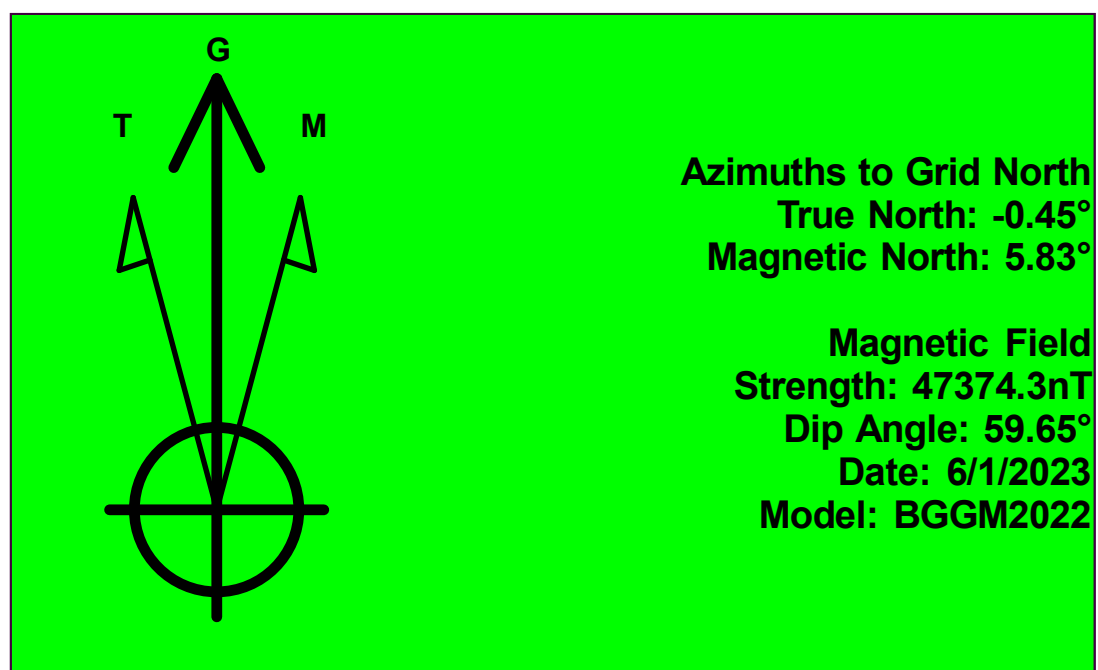
Database:	Central Planning Prod	Local Co-ordinate Reference:	Well GUNNER 8 FEDERAL COM #602H
Company:	DELAWARE BASIN EAST	TVD Reference:	KB= 27 @ 3374.0usft
Project:	BULLDOG PROSPECT (NM-E)	MD Reference:	KB= 27 @ 3374.0usft
Site:	GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)	North Reference:	Grid
Well:	GUNNER 8 FEDERAL COM #602H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PWP1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
FTP (GUNNER 8 FED C	0.00	0.00	12,969.0	114.2	-831.0	393,606.50	761,085.90	32° 4' 45.609 N	103° 29' 25.415 W
- plan misses target center by 170.1usft at 12952.0usft MD (12841.7 TVD, 1.4 N, -831.4 E)									
- Circle (radius 50.0)									
LTP (GUNNER 8 FED C	0.00	0.01	12,969.0	-10,249.6	-741.3	383,242.70	761,175.60	32° 3' 3.046 N	103° 29' 25.313 W
- plan misses target center by 35.7usft at 23200.0usft MD (12969.0 TVD, -10213.9 N, -741.7 E)									
- Point									
PBHL (GUNNER 8 FED	0.00	359.50	12,969.0	-10,299.6	-740.9	383,192.70	761,176.00	32° 3' 2.552 N	103° 29' 25.313 W
- plan hits target center									
- Rectangle (sides W100.0 H10,414.2 D20.0)									

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(usft)	(usft)		Name	(")	(")
23,285.7	12,969.0	5-1/2" Production Casing		5-1/2	6-3/4

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
1,500.0	1,500.0	0.0	0.0	NUDGE - Build 1.50	
2,166.7	2,163.3	10.6	-57.1	HOLD - 3540.5 at 2166.7 MD	
5,707.2	5,650.0	122.6	-661.6	DROP - -0.50	
7,707.2	7,639.9	154.3	-832.7	HOLD - 4851.6 at 7707.2 MD	
12,558.8	12,491.5	154.3	-832.7	KOP - DLS 12.00 TFO 179.50	
13,308.8	12,969.0	-323.1	-828.5	EOC - 9976.9 hold at 13308.8 MD	
23,285.7	12,969.0	-10,299.6	-740.9	TD at 23285.7	



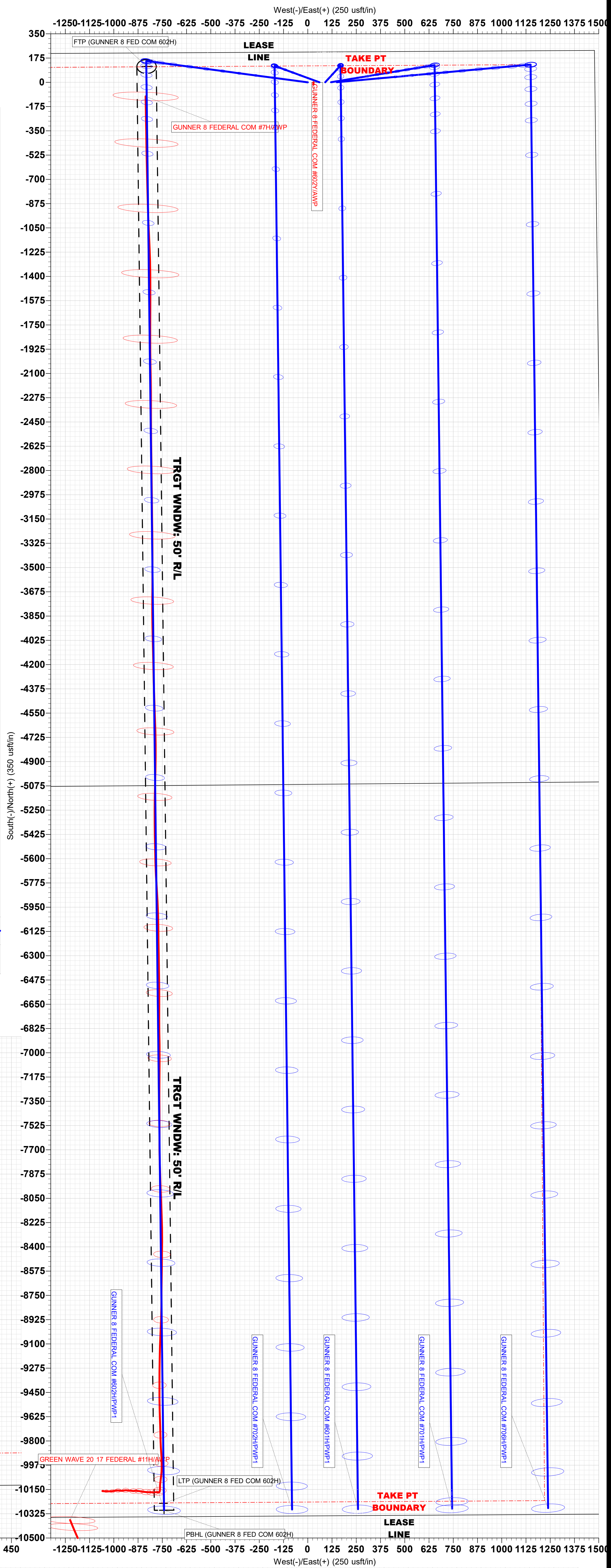
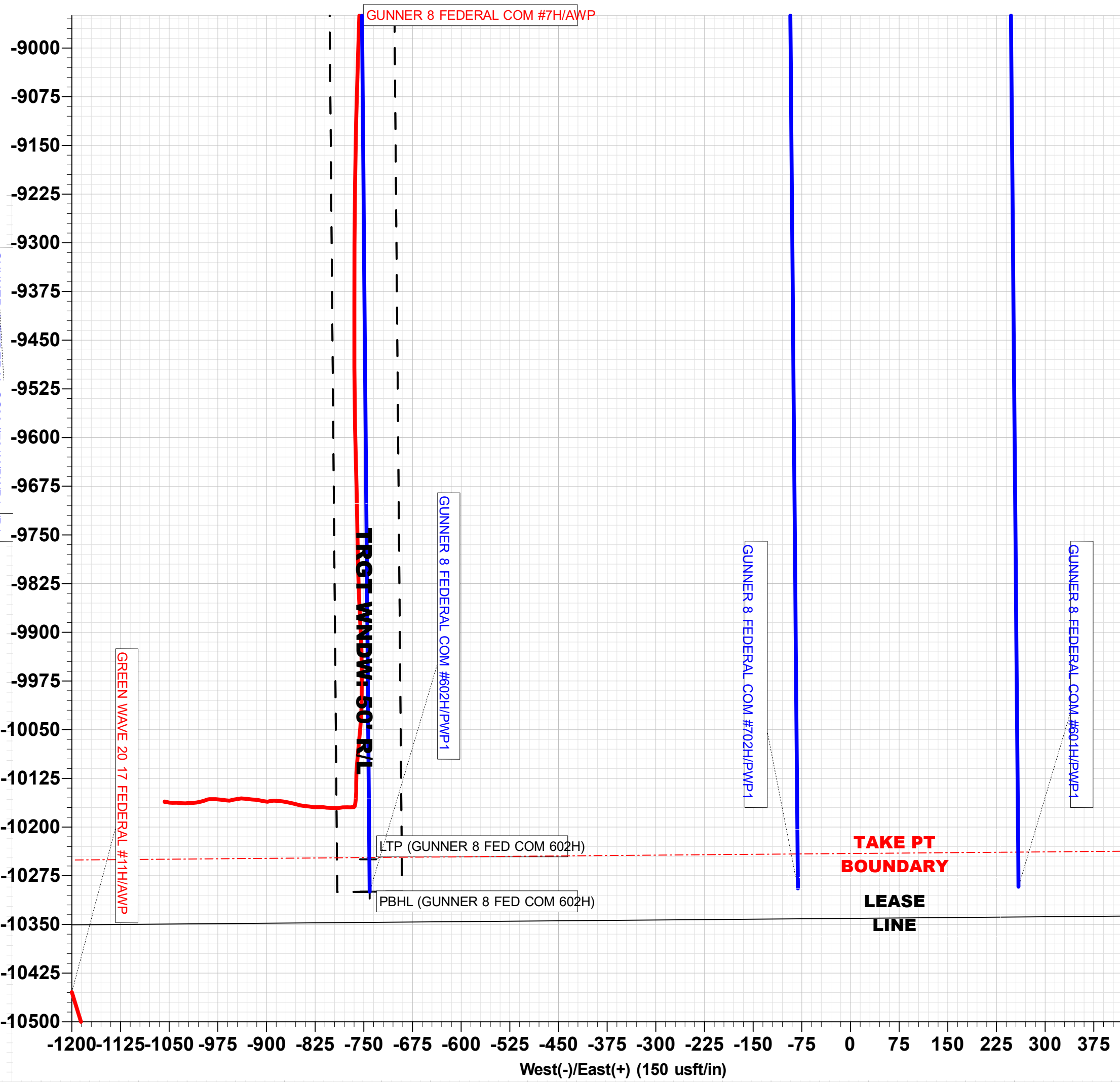
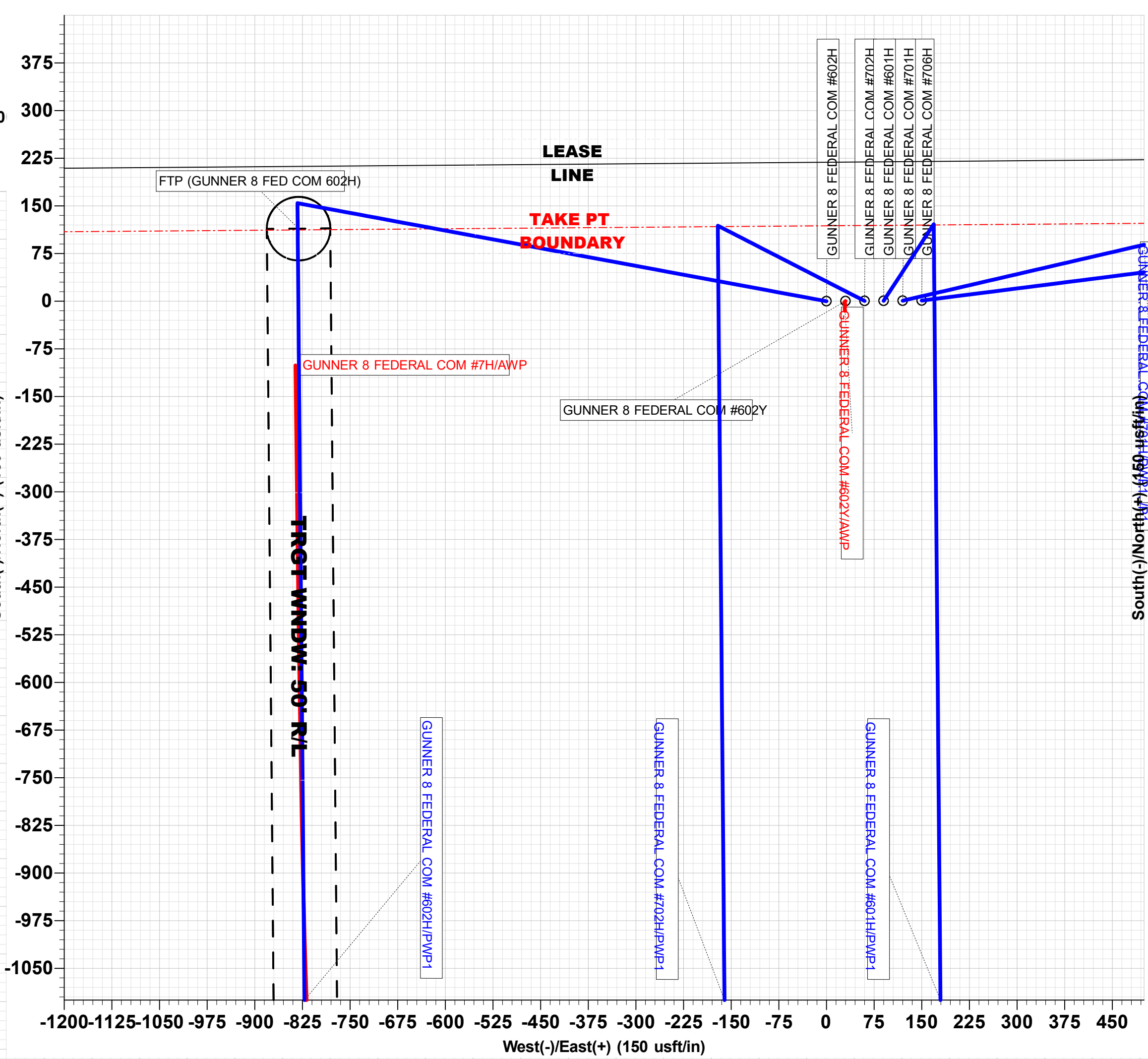
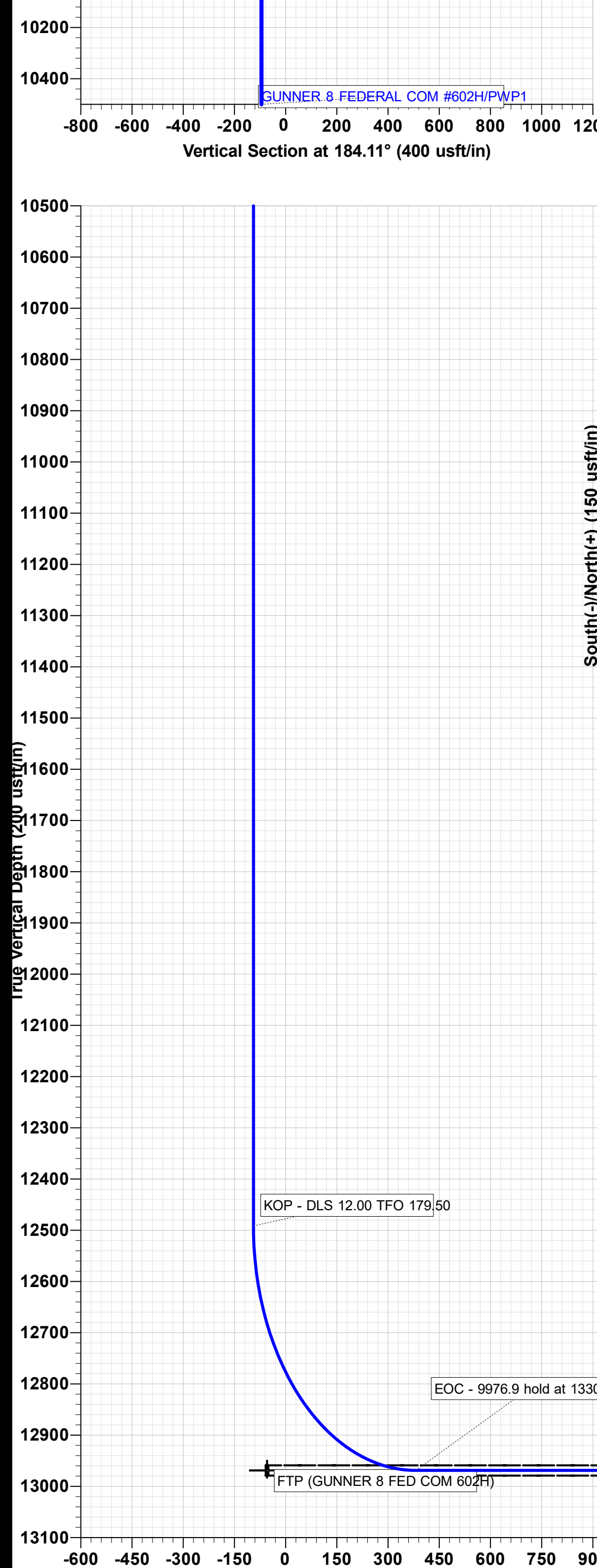
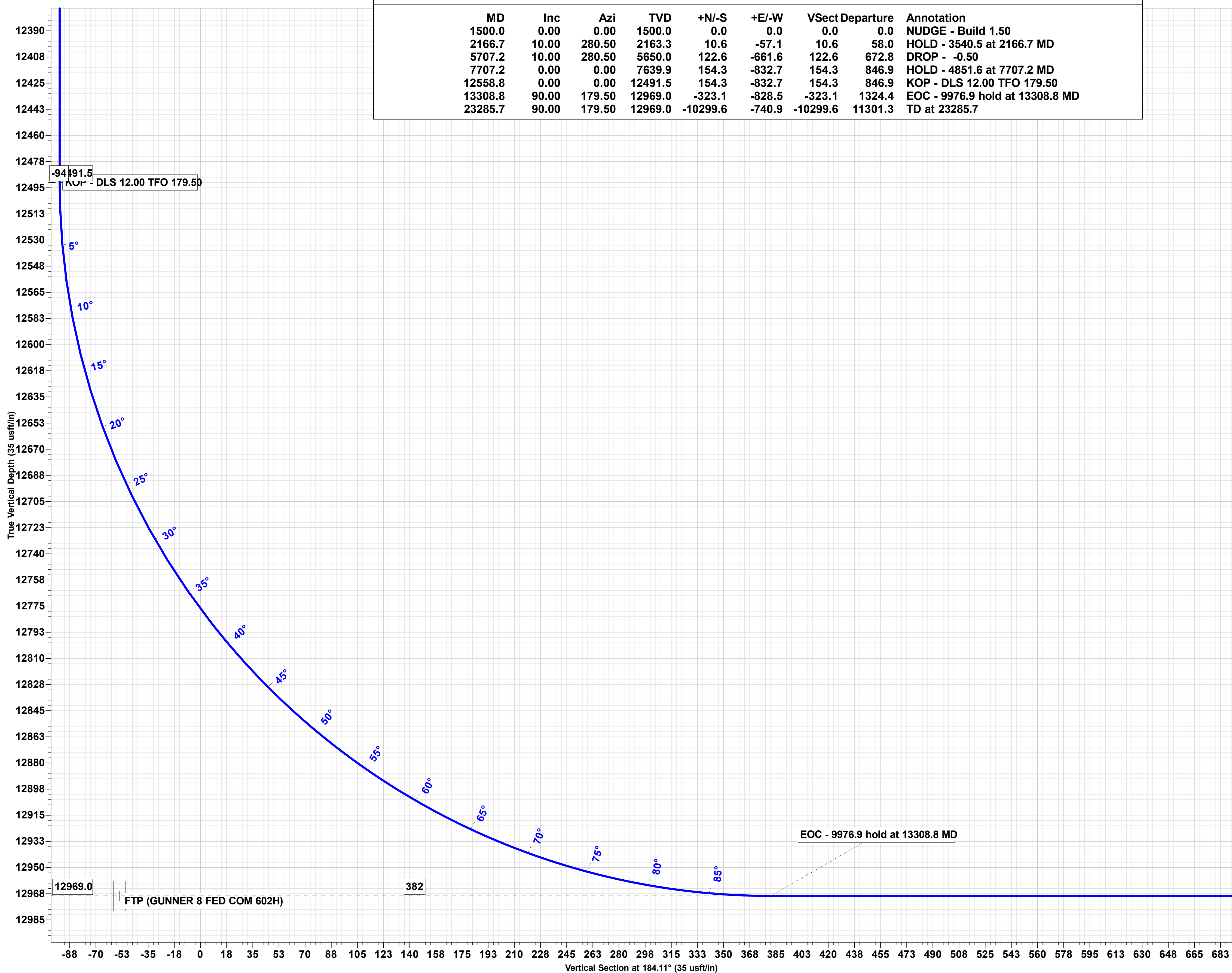
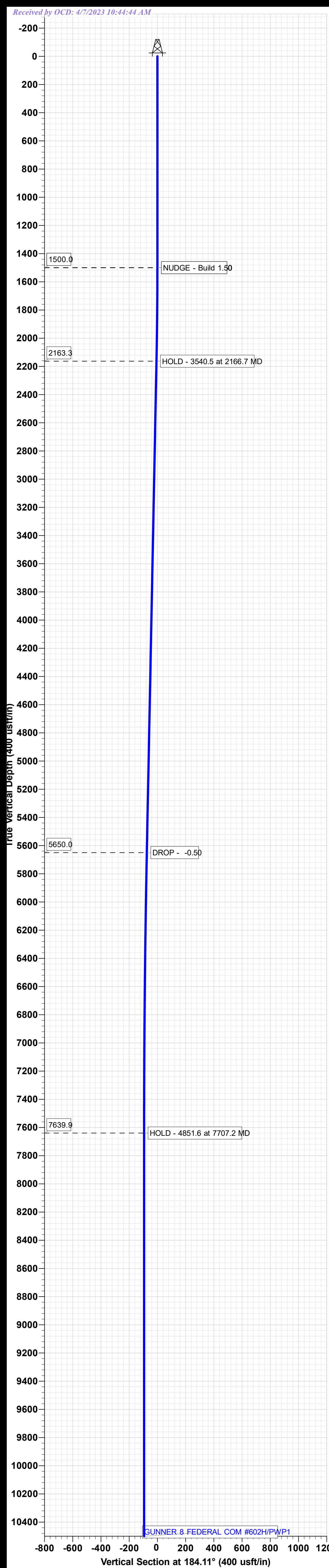


Project: BULLDOG PROSPECT (NM-E)  
Site: GUNNER 8 FEDERAL PROJECT (BULLDOG 2634)  
Well: GUNNER 8 FEDERAL COM #602H  
Wellbore: OWB  
Design: PWP1  
GL: 3347.0  
KB= 27 @ 3374.0usft

WELL DETAILS: GUNNER 8 FEDERAL COM #602H					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	393492.30	761916.90	32° 4' 44.415 N	103° 29' 15.768 W

DESIGN TARGET DETAILS					
Name	TVD	+N/-S	+E/-W	Northing	Easting
FTP (GUNNER 8 FED COM 602H)	12969.0	114.2	-831.0	393606.50	761085.90
LTP (GUNNER 8 FED COM 602H)	12969.0	-10249.6	-741.3	383242.70	761175.60
PBHL (GUNNER 8 FED COM 602H)	12969.0	-10299.6	-740.9	383192.70	761176.00
Shape	Circle (Radius: 50.0)				
Point	Point				
Rectangle (Sides: L10414.2 W100.0)					

PWP1									
MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation	
1500.0	0.00	0.00	1500.0	0.0	0.0	0.0	0.0	NUDGE - Build 1.50	
2166.7	10.00	280.50	2163.3	10.6	-57.1	10.6	58.0	HOLD - 3540.5 at 2166.7 MD	
5707.2	10.00	280.50	5650.0	122.6	-661.6	122.6	672.8	DROP - -0.50	
7707.2	0.00	0.00	7639.9	154.3	-832.7	154.3	846.9	HOLD - 4851.6 at 7707.2 MD	
12558.8	0.00	0.00	12491.5	154.3	-832.7	154.3	846.9	KOP - DLS 12.00 TFO 179.50	
13308.8	90.00	179.50	12969.0	-323.1	-828.5	-323.1	1324.4	EOC - 9976.9 hold at 13308.8 MD	
23285.7	90.00	179.50	12969.0	-10299.6	-740.9	-10299.6	11301.3	TD at 23285.7	



TRGT WNDW: 10' A/B



**COG OPERATING LLC**  
**HYDROGEN SULFIDE DRILLING OPERATIONS PLAN**

**1. HYDROGEN SULFIDE TRAINING**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- a. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S).
- b. The proper use and maintenance of personal protective equipment and life support systems.
- c. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- a. The effects of H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- c. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

**2. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H<sub>2</sub>S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H<sub>2</sub>S. If H<sub>2</sub>S greater than 100 ppm is encountered in the gas stream we will shut in and install H<sub>2</sub>S equipment.

- a. Well Control Equipment:
  - Flare line.
  - Choke manifold with remotely operated choke.
  - Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
  - Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

- b. Protective equipment for essential personnel:  
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.
- c. H2S detection and monitoring equipment:  
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.
- d. Visual warning systems:  
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.
- e. Mud Program:  
The mud program has been designed to minimize the volume of H2S circulated to the surface.
- f. Metallurgy:  
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- g. Communication:  
Company vehicles equipped with cellular telephone.

COG OPERATING LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

# **W A R N I N G**

**YOU ARE ENTERING AN H<sub>2</sub>S AREA  
AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED***
- 2. HARD HATS REQUIRED***
- 3. SMOKING IN DESIGNATED AREAS ONLY***
- 4. BE WIND CONSCIOUS AT ALL TIMES***
- 5. CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

**COG OPERATING LLC**

**1-575-748-6940**

## **EMERGENCY CALL LIST**

	<b><u>OFFICE</u></b>	<b><u>MOBILE</u></b>
COG OPERATING LLC OFFICE	575-748-6940	
SETH WILD	432-683-7443	432-528-3633
WALTER ROYE	575-748-6940	432-934-1886

## **EMERGENCY RESPONSE NUMBERS**

	<b><u>OFFICE</u></b>
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451



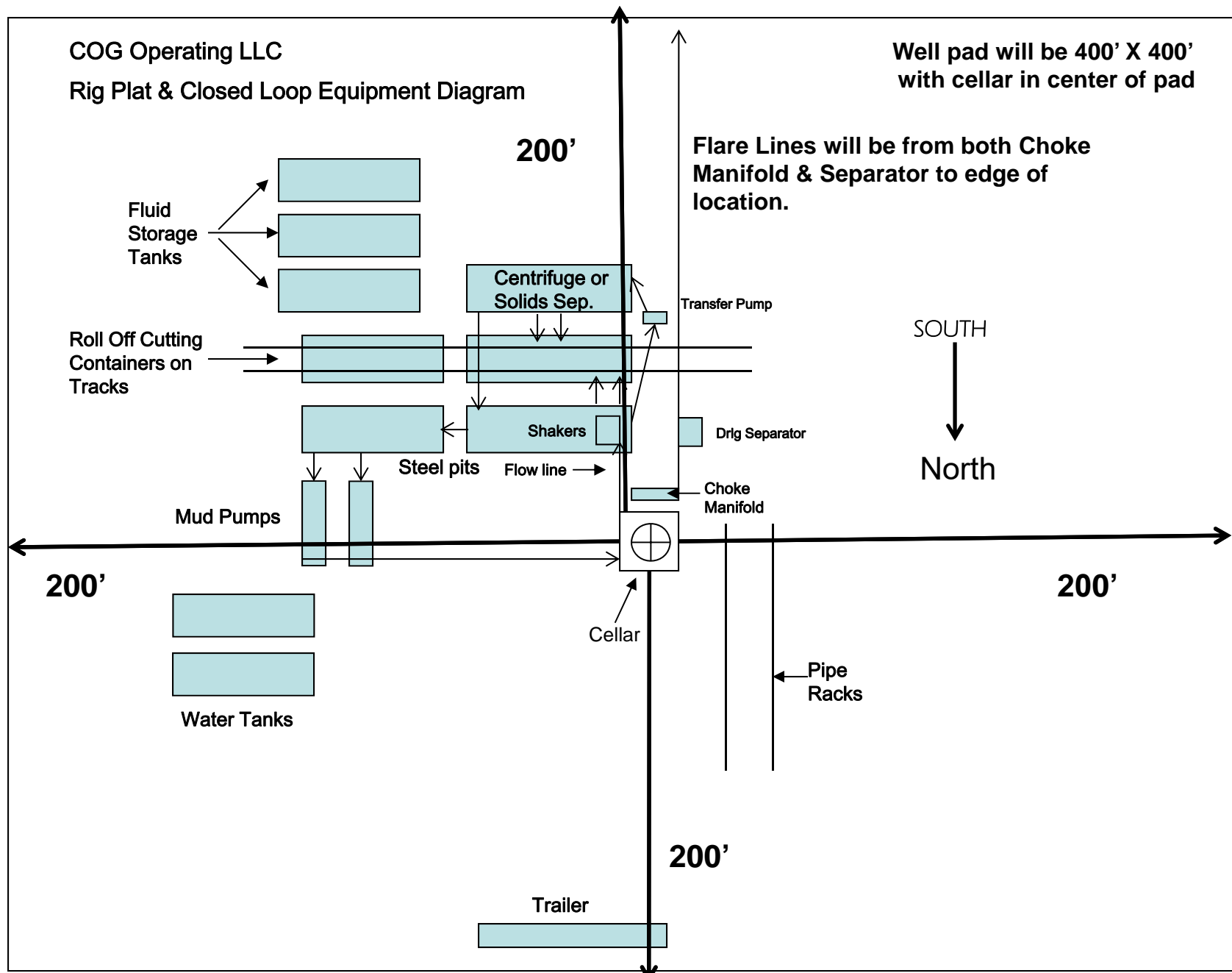


Exhibit 1

"I further certify that COG will comply with Rule 19.15.17 NMAC by using a Closed Loop System."

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 1. Geologic Formations

TVD of target	12,969' EOL	Pilot hole depth	NA
MD at TD:	23,285'	Deepest expected fresh water:	150'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	832	Water	
Top of Salt	1212	Salt	
Base of Salt	5056	Salt	
Lamar	5307	Salt Water	
Bell Canyon	5339	Salt Water	
Cherry Canyon	6347	Oil/Gas	
Brushy Canyon	7967	Oil/Gas	
Bone Spring Lime	9512	Oil/Gas	
1st Bone Spring Sand	10477	Oil/Gas	
2nd Bone Spring Sand	11495	Oil/Gas	
3rd Bone Spring Sand	12106	Oil/Gas	
Wolfcamp A	12584	Target	
Wolfcamp B	0	Not Penetrated	
Wolfcamp D	0	Not Penetrated	

## 2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Body	SF Joint
	From	To								
14.75"	0	1150	10.75"	45.5	N80	BTC	4.69	1.67	19.88	20.97
9.875"	0	8500	7.625"	29.7	HCL80	BTC	1.56	1.02	2.88	2.90
8.750"	8500	12075	7.625"	29.7	HCP110	FJM	1.19	1.33	2.62	1.56
6.75"	0	11575	5.5"	23	P110	BTC	1.72	2.04	3.12	3.10
6.75"	11575	23,285	5.0"	18	P110	BTC	1.72	2.04	3.12	3.10
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing to mitigate collapse. Surface burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface and  
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

The 5" casing will be run back 200' into the intermediate casing to ensure the coupling OD clearance is greater than .422" for the cement bond tie in.

## COG Operating, LLC - Gunner 8 Federal Com #602H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	Y
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary?	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 <sup>rd</sup> string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 <sup>nd</sup> string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 3. Cementing Program

Casing	# Sk	Wt. lb/ gal	Yld ft3/ sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	548	13.5	1.75	9	12	Lead: Class C + 4% Gel + 1% CaCl <sub>2</sub>
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl <sub>2</sub>
Inter.	860	10.3	3.3	22	24	Halliburton tunded light
Stage 1	250	14.8	1.35	6.6	8	Tail: Class H
Prod	537	12.7	2	10.7	72	Lead: 50:50:10 H Blend
	1483	14.4	1.24	5.7	19	Tail: 50:50:2 Class H Blend

If losses are encountered in the intermediate section a DV/ECP tool will be run ~50' above the Lamar Lime top, cement will be adjusted accordingly if this contingency is necessary.

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0'	50%
1 <sup>st</sup> Intermediate	0'	50%
Production	11,575'	35% OH in Lateral (KOP to EOL)

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
---	---------------------------------------------------------------------------------------------------------

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	x	Tested to:
9-7/8"	13-5/8"	5M	Annular	x	2500psi
			Blind Ram	x	5000psi
			Pipe Ram	x	
			Double Ram	x	
			Other*		
6-3/4"	13-5/8"	10M	5M Annular	x	5000psi
			Blind Ram	x	10000psi
			Pipe Ram	x	
			Double Ram	x	
			Other*		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

Y	Formation integrity test will be performed per Onshore Order #2.  On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.

## COG Operating, LLC - Gunner 8 Federal Com #602H

## 5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. Shoe	FW Gel	8.6 - 8.8	28-34	N/C
Surf csg	7-5/8" Int shoe	Brine Diesel Emulsion	8.4 - 9	28-34	N/C
7-5/8" Int shoe	Lateral TD	OBM	9.6 - 12.5	35-45	<20

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---------------------------------------------------------	-----------------------------

## 6. Logging and Testing Procedures

Logging, Coring and Testing.	
Y	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
Y	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain.
N	Coring? If yes, explain.

Additional logs planned		Interval
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

**COG Operating, LLC - Gunner 8 Federal Com #602H****7. Drilling Conditions**

Condition	Specify what type and where?
BH Pressure at deepest TVD	8430 psi at 12969' TVD
Abnormal Temperature	NO 185 Deg. F.

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

N H<sub>2</sub>S is present

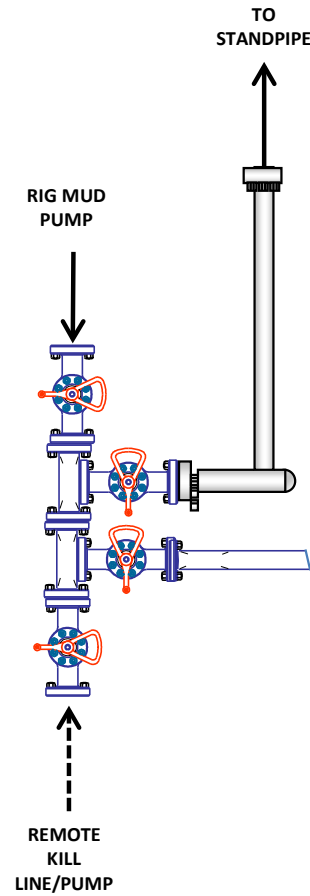
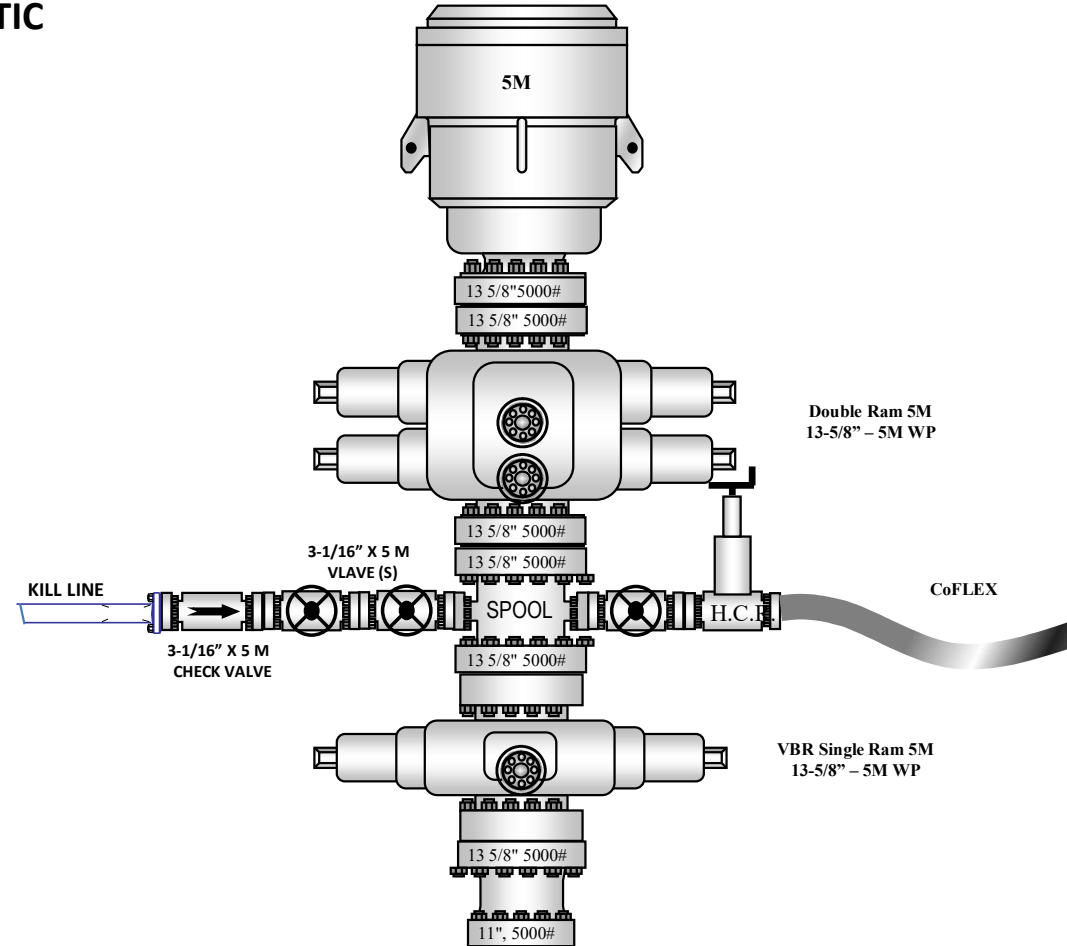
Y H<sub>2</sub>S Plan attached

**8. Other Facets of Operation**

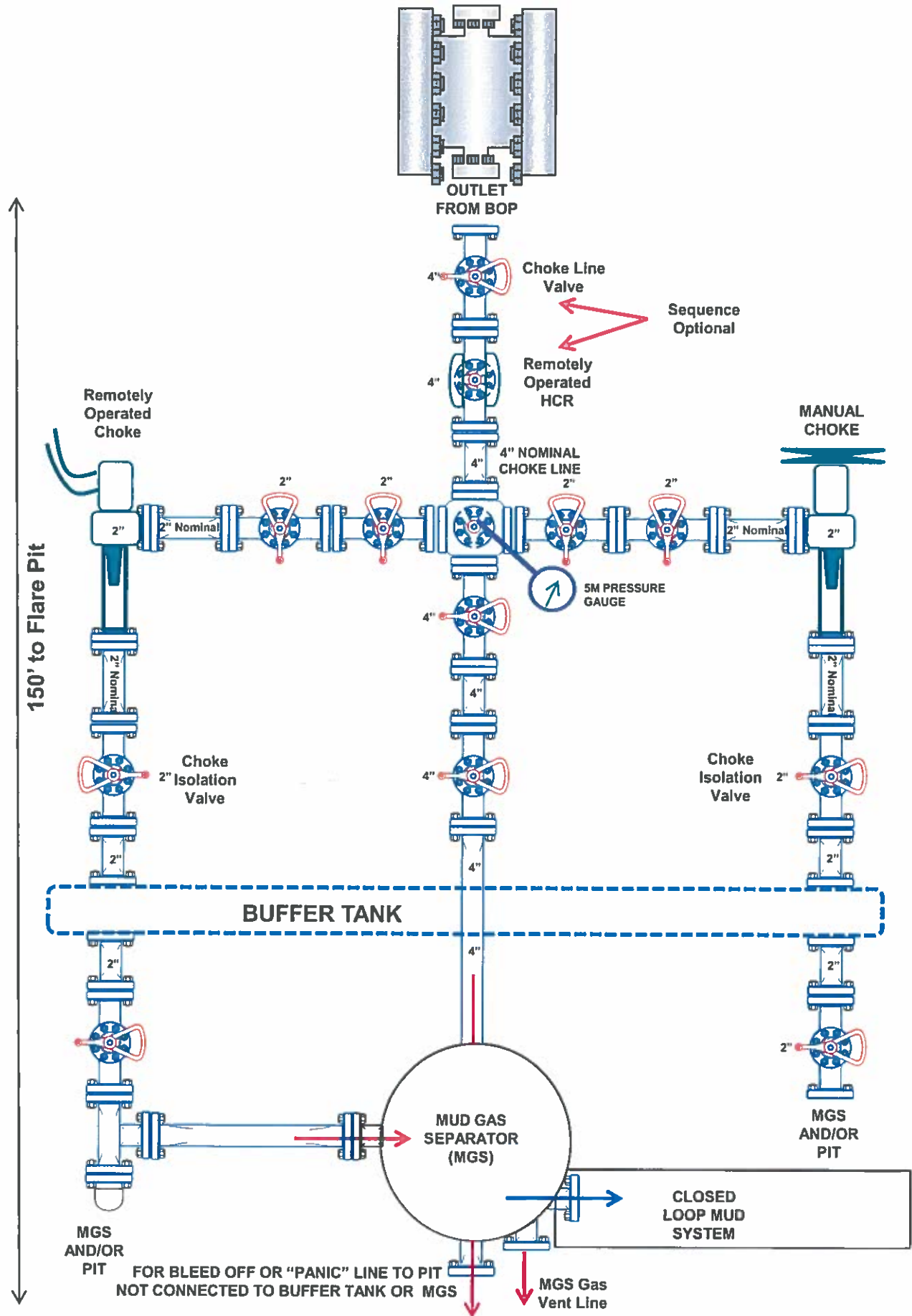
Y	Is it a walking operation?
Y	Is casing pre-set?

x	H <sub>2</sub> S Plan.
x	BOP & Choke Schematics.
x	Directional Plan

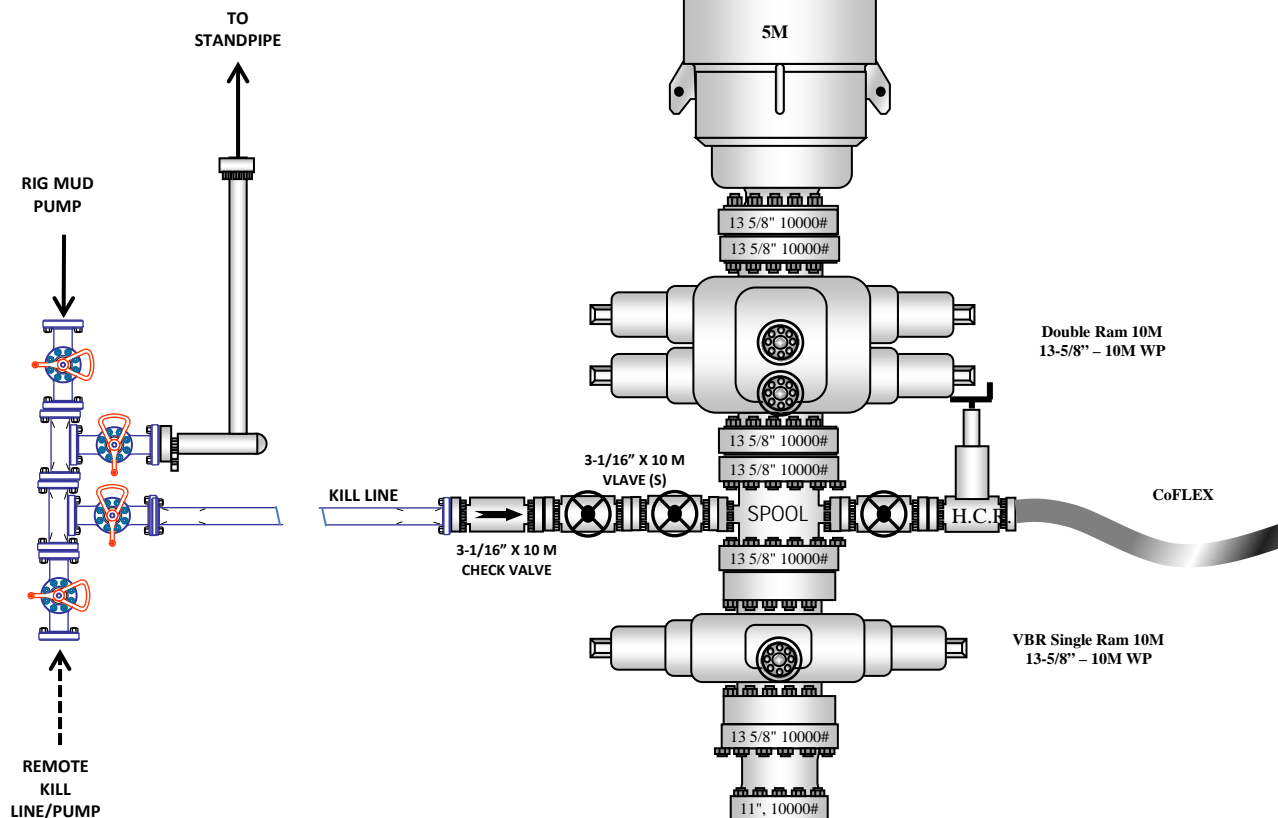


**5M BOP Stack****10M REMOTE KILL SCHEMATIC****5M BOP Stack  
(2.5M Annular)**

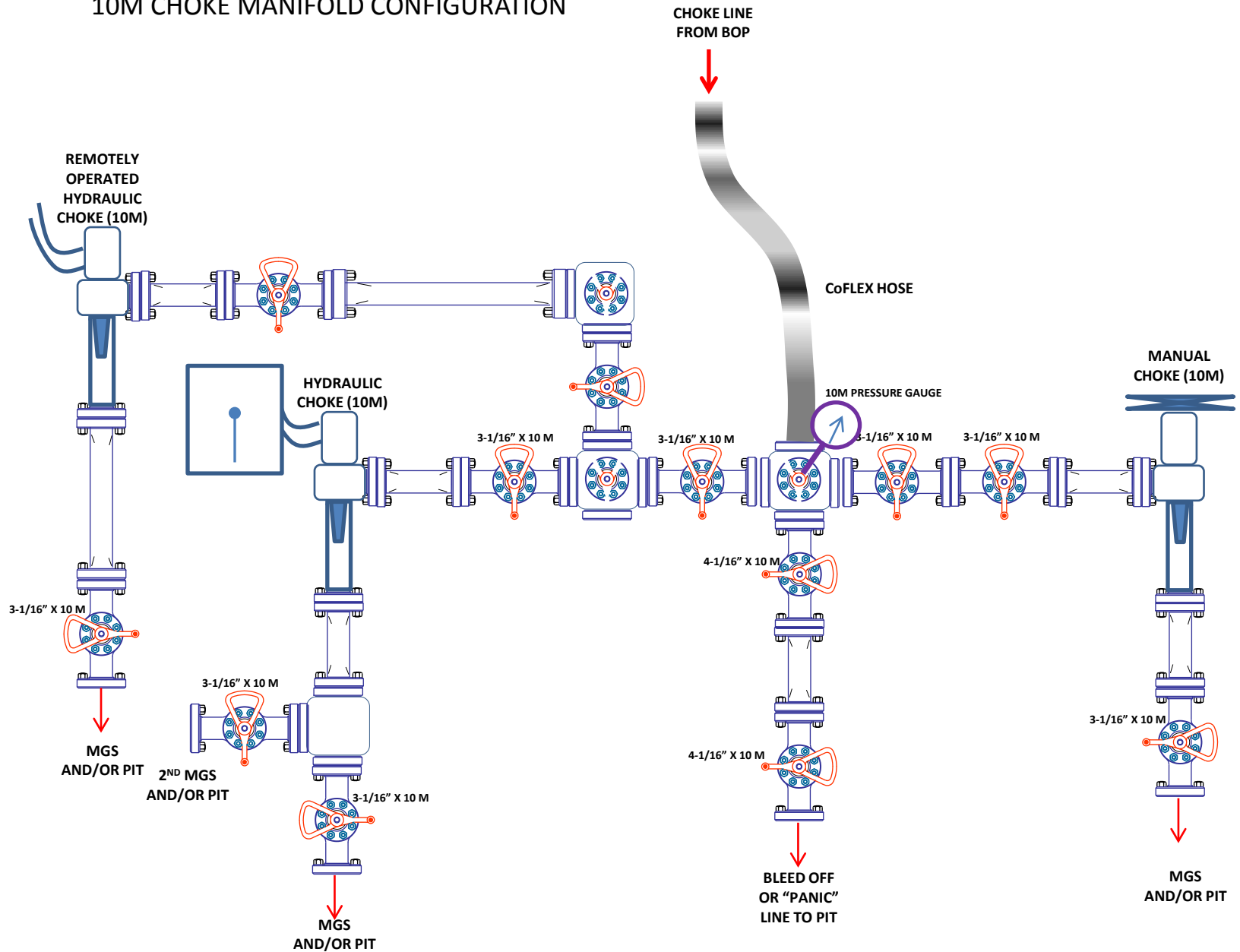
# 5M Choke Manifold Equipment (WITH MGS + CLOSED LOOP)



## 10M REMOTE KILL SCHEMATIC



## 10M CHOKE MANIFOLD CONFIGURATION



**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
**1220 S. St Francis Dr.**  
**Santa Fe, NM 87505**

CONDITIONS  
  
Action 205136

CONDITIONS

Operator: COG OPERATING LLC 600 W Illinois Ave Midland, TX 79701	OGRID: 229137
	Action Number: 205136
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	4/7/2023
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	4/7/2023
pkautz	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	4/7/2023
pkautz	Cement is required to circulate on both surface and intermediate1 strings of casing	4/7/2023